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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,120	03/23/2004	Tetsuo Yamada	107317-00063	2119

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EXAMINER
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MISLEH, JUSTIN P

ART UNIT	PAPER NUMBER
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2622

MAIL DATE	DELIVERY MODE
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08/06/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/806,120

**Applicant(s)**

YAMADA, TETSUO

**Examiner**

JUSTIN P. MISLEH

**Art Unit**

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 March 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) 2-5 and 7-14 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 6, and 15-19 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 01 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/808)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 19, 2008 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed March 19, 2008 have been fully considered but they are not persuasive.
3. Applicant argues, "as shown in Fig. 2 of Mutoh and col. 8, line 23 to col. 9, line 32, a plurality of recording CCD 36 in each column of photodiodes 33 are connected to only one read-out CCD 37. That is, each CCD 37, i.e., the vertical charge transfer device, is not formed adjacent to each photodiodes 33." (emphasis added by Applicant)
4. Applicant appears to correlate the photodiodes (33) in Mutoh with the claimed photoelectric conversion element. However, the Examiner respectfully notes such a narrow interpretation of photoelectric conversion element is unnecessary. In other words, the claimed photoelectric conversion element need not be limited to just Mutoh's photodiodes (33). In fact, the combination of the recording CCD (36) and the photodiode (33) could be considered the claimed photoelectric conversion element. With this interpretation, the CCD (36) is adjacent to

the vertical charge transfer device (37). Therefore, the photoelectric conversion element, which includes the CCD (36), is also adjacent to the vertical charge transfer device.

5. Applicant further argues, “there is no disclosure in Mutoh that the charge-discharging circuit set 44 includes at least two charge-discharging circuits connected in a serial manner for discharging the signal electric charge transferred by at least one of adjacent vertical transfer devices. The elements 34, which are characterized by the Office Action as charge-discharging circuits, are actually pixels, not charge-discharging circuits.”

6. The Examiner respectfully disagrees with Applicant’s position. The claim never actually defines what an individual charge-discharging circuit comprises. In fact, the claim simply recites, “each charge-discharging circuit set including at least two charge-discharging circuits ... for discharging the signal electric charge transferred by at least one of adjacent vertical transfer devices.” Since Mutoh’s pixel elements (34) is responsible for discharging charge and since there are a plurality of pixel elements (34) per column and row, there is no reason, based on the claim language, that each of the pixel elements (34) cannot individually be considered charge-discharging circuits.

### *Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 1, 6, and 15 – 18** are rejected under 35 U.S.C. 102(c) as being anticipated by Mutoh et al. (US 7,176,972 B2).

9. For **Claim 1**, Mutoh et al. disclose, as shown in figure 3, an electric charge transfer apparatus, comprising:

a plurality of vertical charge transfer devices (37), each of which is formed adjacent to a photoelectric conversion element (36 and 33) and transfers a signal electric charge (F2) converted by the photoelectric conversion element (36 and 33);

a plurality of charge-discharging circuit sets (44 – see figure 2) formed next to each vertical transfer device (see figure 3), each charge-discharging circuit set (44) including at least two charge-discharging circuits (figure 2 shows at least four charge-discharging circuits – e.g., element 34 is a charge-discharging circuit) connected in a serial manner for discharging the signal electric charge transferred by at least one of adjacent the adjoining vertical transfer devices (The charge at element 37a in the vertical charge transfer device 37 is discharged via discharge gate 45 and discharge drain 43 – there are a plurality of 37a elements, a plurality of discharge gates 45, and a plurality of discharge drains 43 connected serially along each vertical charge transfer device 37); and

an output circuit (41) that outputs the signal electric charge transferred by the vertical charge transfer devices (37) to an outside of the electric charge transfer apparatus.

10. As for **Claim 15**, Mutoh et al. disclose, as shown in figure 2, a horizontal charge transfer device (39) formed at the lower end of the vertical charge transfer devices (37) and connected at one end thereof with the output circuit (41).

11. As for **Claim 16**, Mutoh et al. disclose, as shown in figure 2, wherein the horizontal charge transfer device (39) receives the signal electric charge in parallel from the plurality of vertical charge transfer circuits (37) and transfers the received signal electric charge in sequence to the output circuit (41).

12. As for **Claim 17**, Mutoh et al. disclose, as shown in figure 3, wherein a first of the at least two charge-discharging circuits (figure 2 shows at least four charge-discharging circuits – e.g., element 34 is a charge-discharging circuit) selectively discharge (via gate 45) the signal electric charge from the plurality of vertical charge transfer devices (The charge at element 37a in the vertical charge transfer device 37 is discharged via discharge gate 45 and discharge drain 43 – there are a plurality of 37a elements, a plurality of discharge gates 45, and a plurality of discharge drains 43 connected serially along each vertical charge transfer device 37).

13. As for **Claim 18**, on basis that residual charge will always be left in the plurality of vertical charge transfer devices (37), the Examiner submits that each of the charge-discharging circuits will discharge some charge leftover from some other charge-discharging circuit connected serially therewith. Therefore, Mutoh et al. disclose wherein a second of the at least two charge-discharging circuits discharges the signal electric charge left after the discharging of the first charge-discharging circuit.

14. For **Claim 6**, Mutoh et al. disclose, as shown in figure 3, a solid-state imaging device, comprising:

a semiconductor substrate (see figures 4 – 7);

a plurality of photoelectric conversion elements (36 and 33) formed on said semiconductor substrate;

a plurality of vertical charge transfer devices (37) formed above said semiconductor substrate, each of which is formed adjacent to each of the photoelectric conversion element (36 and 33) and transfers signal electric charge (F2) photoelectric converted by the photoelectric conversion elements (36 and 33);

a plurality of charge-discharging circuit sets (44 – see figure 2) formed next to each vertical transfer device (see figure 3), each charge-discharging circuit set (44) including at least two charge-discharging circuits (figure 2 shows at least four charge-discharging circuits – e.g., element 34 is a charge-discharging circuit) connected in a serial manner for discharging the signal electric charge transferred by at least one of adjacent the adjoining vertical transfer devices (The charge at element 37a in the vertical charge transfer device 37 is discharged via discharge gate 45 and discharge drain 43 – there are a plurality of 37a elements, a plurality of discharge gates 45, and a plurality of discharge drains 43 connected serially along each vertical charge transfer device 37); and

an output circuit (41) that outputs the signal electric charge transferred by the vertical charge transfer devices (37) to an outside of the electric charge transfer apparatus.

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Sinh Tran can be reached on 571.272.7564. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**/Justin P. Misleh/  
Primary Examiner  
Group Art Unit 2622  
August 8, 2008**